CLAIMS:

1. A catheter body comprising:

a proximal, tubular catheter shaft formed of a relatively stiff material extending between a catheter shaft proximal end and a catheter shaft distal end, the catheter shaft having a catheter shaft outer diameter and enclosing at least one catheter shaft lumen extending between the catheter shaft proximal and distal ends;

a distal soft tip formed of a relatively flexible material in a tubular form extending between a soft tip proximal end and a soft tip distal end, the distal soft tip having a soft tip outer diameter substantially the same as the catheter shaft outer diameter and a soft tip lumen extending between the soft tip proximal end and the soft tip distal end; and

means for adhering the catheter shaft distal end to the soft tip proximal end along a mutual attachment junction thereby aligning the soft tip lumen and outer diameter with the catheter shaft lumen and outer diameter further comprising a tubular sleeve bonded to a distal portion of the catheter shaft and a proximal portion of the distal soft tip bridging the attachment junction.

2. The catheter of Claim 1, wherein the tubular sleeve has an outer diameter that is slightly greater than the catheter shaft and the distal soft tip outer diameters.

3. The catheter of Claim 2, wherein the attachment junction is characterized by interstitial spaces caused by irregular contact of the soft tip proximal end with the catheter shaft distal end and in that the materials of the tubular sleeve and the catheter shaft and the distal soft tip are selected to compatibly melt together in a melt temperature range, and wherein the attachment junction is formed at least in part of tubular sleeve material melted and forced into

the attachment junction with the materials of the distal soft tip and the catheter shaft to fill the interstitial spaces of the attachment junction.

4. The catheter of Claim 3, wherein the catheter shaft distal end and the soft tip proximal end are each formed with a like plurality of ungular cut sections that are complementary in shape to one another, whereby the ungular cut sections of the soft tip proximal end are aligned with and mated together with the ungular cut sections of the catheter shaft distal end along the attachment junction.

5. The catheter of Claim 4, wherein the catheter shaft is formed of a wire braid tube enclosed within a polymeric outer tube and a polymeric inner tube.

6. The catheter of Claim 5, wherein the catheter shaft is at least partially comprised of a polyether-polyamide material having a Shore durometer of at least 70D.

7. The catheter of Claim 6, wherein the distal soft tip is comprised of a polyether-polyamide material having a Shore durometer of about 40D - 55D.

8. The catheter of Claim 7, wherein the sleeve is comprised of a polyether-polyamide material having a Shore durometer of about 40D - 55D.

9. The catheter of Claim 1, wherein the attachment junction is characterized by interstitial spaces caused by irregular contact of the soft tip proximal end with the catheter shaft distal end and in that the materials of the tubular sleeve and the catheter shaft and the distal soft tip are selected to compatibly melt together in a melt temperature range, and wherein the attachment junction is formed at least in part of tubular sleeve material melted and forced into

the attachment junction with the materials of the distal soft tip and the catheter shaft to fill the interstitial spaces of the attachment junction.

10. The catheter of Claim 9, wherein the catheter shaft distal end and the soft tip proximal end are each formed with a like plurality of ungular cut sections that are complementary in shape to one another, whereby the ungular cut sections of the soft tip proximal end are aligned with and mated together with the ungular cut sections of the catheter shaft distal end along the attachment junction.

11. The catheter of Claim 10, wherein the catheter shaft is formed of a wire braid tube enclosed within a polymeric outer tube and a polymeric inner tube.

12. The catheter of Claim 11, wherein the catheter shaft is at least partially comprised of a polyether-polyamide material having a Shore durometer of at least 70D.

13. The catheter of Claim 12, wherein the distal soft tip is comprised of a polyether-polyamide material having a Shore durometer of about 40D - 55D.

14. The catheter of Claim 13, wherein the sleeve is comprised of a polyether-polyamide material having a Shore durometer of about 40D - 55D.

15. The catheter of Claim 1, wherein the catheter shaft distal end and the soft tip proximal end are each formed with a like plurality of ungular cut sections that are complementary in shape to one another, whereby the ungular cut sections of the soft tip proximal end are aligned with and mated together with the ungular cut sections of the catheter shaft distal end along the attachment junction.

16. The catheter of Claim 15, wherein the catheter shaft is formed of a wire braid tube enclosed within a polymeric outer tube and a polymeric inner tube.

17. The catheter of Claim 16, wherein the catheter shaft is at least partially comprised of a polyether-polyamide material having a Shore durometer of at least 70D.

18. The catheter of Claim 17, wherein the distal soft tip is comprised of a polyether-polyamide material having a Shore durometer of about 40D - 55D.

19. The catheter of Claim 18, wherein the sleeve is comprised of a polyether-polyamide material having a Shore durometer of about 40D - 55D.

20. The catheter of Claim 1, wherein the catheter shaft is formed of a wire braid tube enclosed within a polymeric outer tube and a polymeric inner tube.

21. The catheter of Claim 20, wherein the catheter shaft is at least partially comprised of a polyether-polyamide material having a Shore durometer of at least 70D.

22. The catheter of Claim 21, wherein the distal soft tip is comprised of a polyether-polyamide material having a Shore durometer of about 40D - 55D.

23. The catheter of Claim 22, wherein the sleeve is comprised of a polyether-polyamide material having a Shore durometer of about 40D - 55D.

24. The catheter of Claim 1, wherein the catheter shaft is at least partially comprised of a polyether-polyamide material having a Shore durometer of at least 70D.

25. The catheter of Claim 1, wherein the distal soft tip is comprised of a polyether-polyamide material having a Shore durometer of about 40D - 55D.

26. The catheter of Claim 1, wherein the sleeve is comprised of a polyether-polyamide material having a Shore durometer of about 40D - 55D.

27. A catheter body comprising:

a proximal, tubular catheter shaft formed of a relatively stiff material extending between a catheter shaft proximal end and a catheter shaft distal end, the catheter shaft having a catheter shaft outer diameter and enclosing at least one catheter shaft lumen extending between the catheter shaft proximal and distal ends;

a distal catheter segment formed of a relatively flexible material in a tubular form extending between a segment proximal end and a segment distal end, the distal segment having a segment outer diameter substantially the same as the catheter shaft outer diameter and a segment lumen extending between the segment proximal end and the segment distal end; and

means for adhering the catheter shaft distal end to the segment proximal end along a mutual attachment junction thereby aligning the segment lumen and outer diameter with the catheter shaft lumen and outer diameter further comprising a tubular sleeve bonded to a distal portion of the catheter shaft and a proximal portion of the distal segment bridging the attachment junction.

28. The catheter of Claim 27, wherein the attachment junction is characterized by interstitial spaces caused by irregular contact of the segment proximal end with the catheter shaft distal end and in that the materials of the tubular sleeve and the catheter shaft and the distal segment are selected to compatibly melt together in a melt temperature range, and wherein the attachment junction is formed at least in part of tubular sleeve material melted and forced into

the attachment junction with the materials of the distal segment and the catheter shaft to fill the interstitial spaces of the attachment junction.

29. The catheter of Claim 28, wherein the catheter shaft distal end and the segment proximal end are each formed with a like plurality of ungular cut sections that are complementary in shape to one another, whereby the ungular cut sections of the segment proximal end are aligned with and mated together with the ungular cut sections of the catheter shaft distal end along the attachment junction.

30. The method of fabricating a catheter body comprising the steps of:

providing a proximal, tubular catheter shaft formed of a relatively stiff material extending between a catheter shaft proximal end and a catheter shaft distal end, the catheter shaft having a catheter shaft outer diameter and enclosing at least one catheter shaft lumen extending between the catheter shaft proximal and distal ends;

providing a distal catheter segment formed of a relatively flexible material in a tubular form extending between a segment proximal end and a segment distal end, the distal segment having a segment outer diameter substantially the same as the catheter shaft outer diameter and a segment lumen extending between the segment proximal end and the segment distal end; and

bonding a tubular sleeve to a distal portion of the catheter shaft and a proximal portion of the distal segment bridging the attachment junction. to adhere the catheter shaft distal end to the segment proximal end along a mutual attachment junction thereby aligning the segment lumen and outer diameter with the catheter shaft lumen and outer diameter.

31. The method of Claim 30 wherein the bonding step further comprises the step of

aligning the segment proximal end with the catheter shaft distal end whereby the attachment junction is characterized by interstitial spaces caused by irregular contact of the segment proximal end with the catheter shaft distal end;

heating the attachment junction to effect a bond between the segment proximal end with the catheter shaft distal end;

fitting the tubular sleeve over a distal portion of the catheter shaft and a proximal portion of the distal segment bridging the attachment junction;

applying heat and pressure to the tubular sleeve and the underlying distal portion of the catheter shaft and proximal portion of the distal segment bridging the attachment junction to further melt and force the materials of the tubular sleeve and the catheter shaft and the distal segment together to fill the interstitial spaces of the attachment junction and to reduce the outer diameter of the sleeve.

32. The method of Claim 31, wherein:

the step of applying heat and pressure further comprises the step of fitting a heat shrink tube over the tubular sleeve and applying heat sufficient to shrink the heat shrink tube over and apply force to the assembly of the tubular sleeve overlying the distal portion of the catheter shaft and the proximal portion of the distal segment bridging the attachment junction and to melt and force the materials of the tubular sleeve and the catheter shaft and the distal segment together to fill the interstitial spaces of the attachment junction, the shrinkage of the heat shrink tube reducing the outer diameter of the sleeve; and further comprising the step of:

removing the heat shrink tube from the assembly.

33. The method of Claim 32, further comprising the step of:

forming the catheter shaft distal end and the segment proximal end with a like plurality of ungular cut sections that are complementary in shape to one another; and wherein the aligning step further comprises the step of:

aligning and mating the ungular cut sections of the segment proximal end with the ungular cut sections of the catheter shaft distal end along the attachment junction.

34. The method of Claim 31, further comprising the step of:

forming the catheter shaft distal end and the segment proximal end with a like plurality of ungular cut sections that are complementary in shape to one another; and wherein the aligning step further comprises the step of:

aligning and mating the ungular cut sections of the segment proximal end with the ungular cut sections of the catheter shaft distal end along the attachment junction.

35. The method of Claim 30, further comprising the step of:

forming the catheter shaft distal end and the segment proximal end with a like plurality of ungular cut sections that are complementary in shape to one another; and wherein the bonding step further comprises the step of:

aligning and mating the ungular cut sections of the segment proximal end with the ungular cut sections of the catheter shaft distal end along the attachment junction.

36 The method of any of the Claims 30-35 wherein the distal catheter segment comprises a distal soft tip for providing an atraumatic distal tip of the catheter body.